suspicion has proved unfounded, for surveillance by APHIS/SCWDS from 1979 to the present has disclosed no evidence of the disease in more than 750 wild swine from 25 states. Recently, USDA learned that during the 1940s and 1950s hog cholera was intentionally introduced onto two of California's Channel Islands, Santa Cruz and Santa Rosa, in an attempt to control the wild swine populations. Initially, large numbers of swine died but enough survived to repopulate each island. As part of current wildlife disease surveillance, APHIS, USDA, requested that APHIS/SCWDS conduct a study on these islands. During February 1987, APHIS/SCWDS biologists, in collaboration with Dr. David Jessup of the California Department of Fish and Game, collected and necropsied 61 wild swine on Santa Rosa Island and 31 wild swine on Santa Cruz Island. All serologic and virologic evaluations by the National Veterinary Services Laboratories at Ames, Iowa, were negative, which clearly demonstrates that hog cholera virus did not persist among wild swine even with repeated deliberate introductions. This investigation provided a unique opportunity to retrieve information that would not have been feasible to generate by experimental methods. In addition, these data provide support for the epidemiologic concept that many infectious agents affecting confined animals cannot successfully maintain themselves in more dispersed, wild populations. From: SCWDS Briefs, Vol. 3, No. 1.

Special Review of Carbofuran by EPA. The Environmental Protection Agency (EPA) is currently conducting a Special Review of all granulated forms of the pesticide carbofuran. The review was initiated because this carbamate has been associated with bird mortality in several states including Virginia, where it was linked with secondary poisoning of 2 bald eagles. Granulated carbofuran, often sold as Furadan, is favored by many farmers because it is versatile and efficient. Unfortunately, granules that are not covered by soil can be ingested by birds and small mammals. The extent of wildlife losses has not been defined, and with spring planting in progress it would be advisable to be alert for carbofuran-related mortality. Information on cases should be reported to Ms. Ingrid Sunzenauer, Review Manager, Special Review Branch, EPA, 401 M Street, S.W., TS767C, Washington, D.C. 20460.

National Wildlife Health Center Quarterly Mortality Report. The following summarizes bird mortalities reported by NWHC for January–March 1987.

NWHC received reports of 36 wildlife disease die-offs; primary causes of mortality were avian cholera (56%), and known or suspected exposure to toxic agents (25%).

A total of 200 mallards and black ducks died at three locations in Ohio's Sandusky Bay during January and February. Lead poisoning was responsible for mortality at one location; no diagnosis has been reached for the other cases. FWS Environmental Contaminants staff are conducting analyses on tissues in an effort to determine if any toxins are present.

An unprecedented loss of 43 Aleutian Canada geese to avian cholera occurred in the San Joaquin Valley of California during February. An initial mortality of 28 geese occurred on Modesto oxidation ponds; following hazing of Aleutians from these ponds, an additional 15 geese were picked up in the north grasslands and at a private pond in Modesto. It is not known if avian cholera losses were occurring on these areas prior to use by these geese. Other causes of mortality in Aleutian geese picked up during this epizootic were lead poisoning (4), and traumatic injuries (4).

Ten of 150 park ducks (muscovies, pekins, and domestic mallards) that resided on a creek on the University of California campus at Davis, died of Duck Plague during early March. Because this creek is used by migrating populations of ducks the remaining resident ducks were euthanized and the site decontaminated.

Sudden loss of 1,500 waterbirds on the Carson Sink area of Stillwater WMA, Fallon, Nevada, concurrent with loss of seven million Lahontan Tui Chub, sparked a lengthy investigation of this area. Avian cholera and traumatic injuries were the causes of death in the birds; the first record of avian cholera mortality at Stillwater. Investigation into the cause of mortality in the fish is continuing; intolerance to increasing salinity levels in receding water is suspected. *Kathryn Converse, National Wildlife Health Center.*

Please send all items for the *Wildlife Disease Newsletter* to: W. R. Davidson, School of Forest Resources, The University of Georgia, Athens, Georgia 30602, USA. The *Wildlife Disease Newsletter* is non-refereed and items contained in the *Newsletter* may not be acceptable as and should not be cited as published material.

QUARTERLY DIE-OFF REPORT

January 1987–March 1987
National Wildlife Health Center

Location	Date	Principal species	Mortality	Principal cause of mortality
Merced NWR, CA	1/26/87–3/17/87	Snow geese, Ross' geese, white-fronted geese, pintails	104	Avian cholera
Layfayette Park, DC	–12/26/86	Gray squirrels	5	Trauma-intraspecies, secondary septicemia
Sequoya NWR, OK	11/26/86–12/8/86	Snow geese	16	Toxin: suspect
Colusa NWR, CA	12/2/86–1/9/87	Snow geese, Ross' geese	138	Avian cholera
Sac Wilcox WMA, NE	12/4/86–12/25/86	Snow geese	58	Avian cholera
Lee Co., FL	12/31/86–1/8/87	Terns, gulls, cormorants	12	Emaciation (many causes)
Kesterson Reservoir, CA	1/4/87–1/28/87	Coots, ruddy ducks	75	Avian cholera, selenium suspect
Lakin, KS	1/8/87–1/12/87	Vesper sparrows	275 (e)	Trauma
Mallard Haven, NE	1/9/87–1/15/87	Snow geese	153	Avian cholera
Kern NWR area, CA	1/9/87–1/31/87	Shovelers, ruddy ducks, coots	150	Avian cholera
Modesto, CA	1/12/87–1/31/87	Ruddy ducks, coots, Aleutian Canada geese	650 (e)	Avian cholera
Union County, Horseshoe Lake, IL	1/13/87–2/20/87	Canada geese	373	Avian cholera
Delta County, CO	–1/14/87	Red-winged blackbirds, juncos, sparrows, Cooper's hawks	41	Toxin: suspect
Salton Sea NWR, CA	1/20/87–3/10/87	Ruddy ducks, eared grebes	500 (e)	Avian cholera[1]
San Bernard NWR, TX	1/20/87–1/27/87	Snow geese	145	Avian cholera
Kesterson NWR, CA	1/4/87–2/5/87	Coots, ruddy ducks	3	Avian cholera
Near Marblehead, OH	1/28/87–2/18/87	Mallards, black ducks	40 (e)	Toxin: suspect
Winous Point, OH; Sandusky Bay, OH	1/28/87–2/15/87	Mallards, black ducks	150 (e)	Lead poisoning
Ottawa River, OH	2/5/87–2/20/87	Mallards, black ducks	40 (e)	Toxin: suspect
Grasslands, CA	2/7/87–2/14/87	Snow geese, Aleutian Canada geese, coots, pintails	94	Avian cholera, lead poisoning
Riverton WMA, IA	2/11/87–2/20/87	Snow geese	17	Avian cholera suspect[1]
Doctor's Pond, CA	2/13/87–2/21/87	Aleutian Canada geese, Canada geese, cackling Canada geese, ruddy ducks	7	Avian cholera, lead poisoning
Cedar Key, FL	2/17/87–ongoing	Common loons	55 (e)	Toxin: suspect
National Elk NWR, WY	2/15/87–4/7/87	Elk	12	Pasteurellosis
Mud Lake, MN	2/18/87–3/6/87	Mallards, Canada geese	100 (e)	Lead poisoning
West Salem, OR	–2/20/87	Canada geese	12	Toxin: suspect
Rainwater Basin, NE	2/25/87–ongoing	Snow geese, Canada geese, white-fronted geese, mallards, pintails	1,100	Avian cholera, lead poisoning, toxin: suspect, storms
Alamosa NWR, CO	1/29/87–2/3/87	Mallards, Canada geese	27	Avian cholera
Tulelake NWR, CA	3/4/87–ongoing	Snow geese, ring-billed gulls	759	Avian cholera, aspergillosis
Davis, CA	3/4/87–3/12/87	Muscovy	10	Duck virus enteritis
Frito, CO	–3/4/87	Red-winged blackbirds	5	Toxin: suspect
Wheeler, AL	–3/17/87	Great blue herons	13	Enteritis, verminous peritonitis
Market Lake WMA, ID	3/17/87–3/19/87	Snow geese	12	Avian cholera
Arden, NC	–3/14/87	Finches, grosbeaks	25	Salmonella: suspect[1]

Principal cause of mortality
vian cholera
Trauma-intraspecies, secondary septicemia
Toxin: suspect
vian cholera
vian cholera
Emaciation (many causes)
vian cholera, selenium suspect
Trauma
vian cholera
vian cholera
vian cholera
vian cholera
Toxin: suspect
vian cholera[1]
vian cholera
vian cholera
Toxin: suspect
Lead poisoning
Toxin: suspect
Avian cholera, lead poisoning
Avian cholera suspect[1]
Avian cholera, lead poisoning
Toxin: suspect
Pasteurellosis
Lead poisoning
Toxin: suspect
Avian cholera, lead poisoning, toxin: suspect, storms
Avian cholera
Avian cholera, aspergillosis
Duck virus enteritis
Toxin: suspect
Enteritis, verminous peritonitis
Avian cholera
Salmonella: suspect[1]

QUARTERLY DIE-OFF REPORT

January 1987–March 1987
National Wildlife Health Center

Location	Date	Principal species	Mortality	Principal cause of mortality
Malheur NWR, OR	3/10/87–4/10/87	White geese, tundra swans	30	Avian cholera[1]
Millers Island WMA, CA	–2/1/87	Cackling Canada geese, white-fronted geese	3	Avian cholera
*Update**				
Sacramento NWR, CA	11/17/86–2/28/87	Snow geese, Ross' geese, white-fronted geese, pintails	1,262	Avian cholera

[1] No carcasses submitted.
e = estimated mortality.
* Final mortality information, from cases ongoing last quarter.
For specific information, contact the following Resource Health Team members: Pacific Flyway—Kathryn Converse, Central Flyway—Ronald Windingstad, Mississippi Flyway—Chris Franson, Atlantic Flyway—Tom Roffe.

National Wildlife Health Center
6006 Schroeder Road
Madison, Wisconsin 53711, USA
(608) 271-4640 or FTS 364-5411